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African region statement to the fourteenth session of the Commission on Sustainable Development on energy for sustainable development, industrial development, air pollution/atmosphere and climate change

I. Preamble

1. The Economic Commission for Africa (ECA), in preparation for the fourteenth session of the Commission on Sustainable Development, held a regional implementation meeting in Addis Ababa, from 26 to 28 October 2005, to review progress on the implementation of the Plan of implementation of the World Summit on Sustainable Development (Johannesburg Plan of Implementation) in the African region, pursuant to an earlier declaration made by the Commission's eleventh session, in order to allow effective consideration of regional and subregional inputs throughout the implementation cycle and to ensure maximum flexibility, the Commission decided to invite the regional commissions, in collaboration with the secretariat of the Commission on Sustainable Development, to consider organizing regional implementation meetings in order to contribute to the work of the Commission in accordance with the relevant provisions of the Johannesburg Plan of Implementation, and in collaboration with other regional and subregional organizations and bodies as appropriate, as well as the regional offices of funds, programmes and international finance and trade institutions and other organizations and bodies of the United Nations system.

2. The regional implementation meeting focused on energy for sustainable development, industrial development, air/atmosphere pollution and climate change. An overall review of progress in implementation was undertaken, including the identification of opportunities, challenges and implementation constraints that African countries faced in those areas. While the review showed some progress in implementation, it also highlighted the inability of some African countries to meet their goals and targets. The review considered the concerns of African United

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Nations Member States, the regional and subregional intergovernmental organizations, civil society and business.

3. Participants in the meeting benefited from and appreciated the participation and contribution of the Economic and Social Commission for Asia and the Pacific.

4. At the meeting appreciation was also expressed for the previous contributions of the Bretton Woods institutions and the African Development Bank, which were urged to implement specific activities that would support Africa's various programmes and plans for meeting internationally agreed development goals, including those contained in the United Nations Millennium Declaration and the outcomes of major United Nations conferences and international agreements made since 1992.

5. At the meeting, participants reaffirmed that poverty eradication was indispensable for sustainable development and reiterated the commitment of African countries to the Johannesburg Plan of Implementation, including paying special attention to small island developing States, least developed countries and heavily indebted poor countries. It was affirmed that the achievement of the development goals was contingent upon an enabling international environment premised on the legitimate development priorities of developing countries that addressed the fundamental challenges of financing for development, globalization and market access in the sectors of export of interest to them.

6. At the meeting, it was recalled that success in attaining the objectives of development and poverty eradication depended, inter alia, on good governance within each country and at the international level, as well as transparency in financial, monetary and trading systems.

7. Concern was expressed that the limited progress in the implementation of Agenda 21 and the Johannesburg Plan of Implementation (stemming from the lack of fulfilment by the international community of its implementation commitments made at the United Nations Conference on Environment and Development, the International Conference on Financing for Development and the World Summit on Sustainable Development) could hamper the achievement of sustainable development in developing countries, particularly in Africa.

8. Participants also expressed concern over the limited modern energy production and consumption and the extreme vulnerability to climate change, which critically impaired socio-economic development in Africa, and the inadequate contribution of the industrial sector, in particular mining, minerals and metals, to environmental sustainability.

9. Participants recognized the important role played by civil society and the private sector, and the need to ensure their full participation in achieving sustainable development. They called for enhanced partnership in the implementation of the Johannesburg Plan of Implementation, and invited Governments to work together with civil society, major groups and the private sector.

10. Participants recalled the commitments that had been made by African countries, including those of the Millennium Development Goals and the Johannesburg Plan of Implementation. They also reaffirmed the New Partnership for Africa's Development (NEPAD) as the sustainable development framework for Africa.

II. Energy for sustainable development

A. Challenges and constraints

11. The meeting identified the following specific challenges and implementation constraints:

(a) Inadequate policy, legal, regulatory and institutional frameworks and limited financial flow for the development and provision of sustainable energy, especially for the poor;

(b) Low energy production due to largely untapped energy resource potential, particularly renewables;

(c) Uneven regional availability and distribution of energy resources;

(d) Underdeveloped transportation, production, transmission and distribution infrastructure, and high up-front energy investment and use costs, constituting barriers to energy access by the urban and rural poor;

(e) Low private sector participation and investment in the energy sector;

(f) Inadequate access to energy in rural Africa as a result of the high costs of production, transmission, distribution and depletion of energy resources;

(g) Inefficient utilization and wastage of energy;

(h) High dependence on, and inefficient use of, biomass energy sources and the associated environmental, economic and social impact, especially on women and children, in the majority of African countries and small island developing States;

(i) Continued high rates of population growth, urbanization, precarious emergence of informal settlements due to migration and increase pressure on cities to provide sustainable energy due to motorization;

(j) Inadequate skills and education of the rural population holding back their participation in the implementation of energy programmes and projects;

(k) Lack of empowerment hindering the participation of local governments, regional councils, cities and community-level organizations, reducing the success of many energy projects;

(l) Supply of inappropriate forms of energy not responsive to the needs of the majority of people;

(m) The overall energy insecurity challenges faced by most small island developing States and their associated economic impact.

B. Progress and achievements

12. Participants noted the achievements made on various important energy issues in Africa, including in the areas:

Energy accessibility for poverty alleviation

(a) Increased recognition that the problem of access to energy in rural Africa required much more attention, means and renewed commitments by all stakeholders to achieve the Millennium Development Goals;

(b) Access to affordable and clean energy services for the urban poor largely residing within informal settlements had become more recognized as an important item of the human settlements agenda;

(c) Increased country-to-country and city-to-city dialogue and cooperation were being held on the issue of clean energy access for the urban poor;

(d) Energy access scale-up initiatives were leading to the design of new energy supply schemes integrating energy services to the development of productive and income-generation activities, entrepreneurship and the promotion of indigenous energy resources;

(e) Off-grid systems, based on renewable energy, had been developed in rural areas of many countries, and validated as an important option to increase energy access;

(f) Progress had been made in capacity-development and investments in mini-hydro power systems, with the identification of a large number of potential mini/micro hydropower sites;

(g) A subregional rural energy programme was well advanced in Economic Community of West African States and Southern African Development Community (SADC) countries, with plans to harmonize national policies;

(h) Institutional and other barriers to the development of small and medium-scale energy enterprises had been identified and approaches for their removal were being implemented in some countries;

(i) In many countries, small and medium-size energy service enterprises had been established and a renewable energy market was being developed;

Changing patterns of energy consumption and production

(j) In many countries, national capabilities on forestry services and energy agencies for wood energy planning and policy development had been enhanced;

(k) Wood energy statistics and information had improved and been promoted as tools for the promotion of sustainable wood energy systems;

(l) Various practical actions, ranging from geographical mapping of renewable energy resources, development of energy and energy efficiency service enterprises, to activities aimed at identifying and removing barriers, had been undertaken to increase the share of renewable energy in the energy mix.

Information-sharing on cleaner energy technologies

(m) Many network initiatives (e.g. the Global Network on Energy for Sustainable Development, the Renewable Energy and Energy Efficiency Partnership, the Partnership for Clean Fuels and Vehicles, the Global Village Energy Project) had contributed to enhancing knowledge and capacity in many countries on cleaner energy technology options for energy production;

(n) Functioning networks for sharing information and knowledge on sustainable transport infrastructure investment, cleaner technologies and air quality management had been established between individuals, institutions and government representatives in many countries;

General and cross-cutting issues and means of implementation

(o) The United Nations system and the international community had increased their efforts through various mechanisms at the international level (e.g. the special office for NEPAD) and at the regional level (e.g. United Nations regional consultation meeting) to support African countries in implementing NEPAD;

(p) Financial investments in NEPAD energy projects had increased and were projected to grow further;

(q) Internal capacity of several development and commercial banks (e.g. the African Development Bank) and private investors to assess investments in the energy sector had improved;

(r) Several actions had been implemented to strengthen the capacity of energy planners and developers, education and research institutions and centres of excellence;

(s) Efforts to increase subregional and regional energy trade had been stepped up with the establishment of power pool arrangements in each subregion, and the signing of agreements for cross-border electricity, oil and gas exchange, in the framework of the major regional economic communities;

(t) Several actors, including the African Energy Commission, had made progress in the collection, management and dissemination of energy information in Africa.

C. Lessons learned and the way forward

13. Participants in the meeting identified the following lessons, best practices and the way forward:

(a) More actions and cooperation should be undertaken for sharing of relevant experiences between the various regions of the world and among African countries;

(b) There was a need to build capacity that was responsive and inclusive of social and environmental factors in investment decisions related to energy projects;

(c) There was a need for institutional capacity in energy planning, analysis and modelling using specific national and regional data to inform decision-making and policy development;

(d) There was a need for increased political will and leadership, as well as greater awareness, knowledge and consciousness of African policy and decision makers on emerging and sustainable energy issues to inform better policy and implementation;

(e) There was a need to integrate off-grid systems with the overall national energy systems and implementation strategies;

(f) Policies, strategies, legal and regulatory frameworks that integrated the specificities of the African energy context, especially in rural areas, should be established by Governments to promote adequate and affordable sustainable energy services;

(g) Measures should be taken by African policymakers to create a legal, regulatory and institutional framework conducive to an attractive national investments climate for domestic and foreign investors;

(h) Frameworks and incentives should be encouraged, developed and strengthened to promote regional integration of energy projects, programmes and systems;

(i) International development partners, including the United Nations, should enhance their financial and technical support for the energy sector in Africa;

(j) Financial flow to the energy sector to support the implementation of the NEPAD energy initiative should be increased;

(k) Considering the largely untapped hydropower potential of Africa and the emphasis put by the NEPAD Energy Action Plan on the development of large hydropower plants, African Governments, with the support of the international community, should accelerate the development of environmentally and socially balanced hydropower projects in Africa;

(l) The Regional Economic Communities, with the support of international partners, should promote subregional and regional energy trade as a catalyst for development in Africa;

(m) The African Energy Commission should receive more support to accelerate the achievement of energy integration in Africa, through, inter alia, the development of up-to-date energy information systems, regional and national capacity-development on pertinent energy decision-making and planning tools. Member States were urged to ratify and put in place mechanisms to implement the African Energy Commission Convention;

(n) In order to improve the share of renewable energy in the African energy mix, African Governments should promote energy diversification and remove barriers for fairer competition between all energy resources;

(o) African Governments, with the support of the international community, should design and implement urgent appropriate measures in order to modernize and assure energy efficiency of the traditional biomass energy sector so as to reduce the negative impact of its heavy usage on human health, the environment and on other issues related to the Millennium Development Goals;

(p) National Governments, international development partners, regional and subregional decision makers should view the problem of access to modern energy in rural and peri-urban areas as inseparable from poverty reduction efforts and strategies and take urgent measures to address it in poverty reduction strategy papers and national sustainable development strategy in order to achieve the internationally agreed development goals, including the Millennium Declaration;

(q) Governments were urged to intensify efforts to decentralize the decision-making process for energy investments and projects and promote more participation by local governments, regional, communal, and community-based organizations;

(r) All international partners, especially United Nations organizations, must make more efforts to create coherence, complementarities and effectiveness in developing the African energy sector. This could be achieved in the framework of a collaborative mechanism such as United Nations-Energy/Africa and other inter-agency coordination mechanisms.

III. Air pollution and atmosphere

A. Challenges

14. Participants identified some challenges to implementation, including:

(a) Poor understanding and forecasting of the various properties of the atmosphere and affected ecosystems and of the impact on health and its interaction with socio-economic factors;

(b) Lack of capacity and finance, as well as cultural barriers to access and use of environmentally sound energy systems to minimize atmospheric pollution;

(c) Unsustainable production and consumption practices in industry and transportation sectors;

(d) Inappropriate land-use policies and poor management of natural resources;

(e) Inadequate compliance with control measures identified within the framework of the United Nations Framework Convention on Climate Change and the Montreal Protocol on Substances that Deplete the Ozone Layer;

(f) Lack of programmes for and cooperation in systematic observation of air pollution, assessment and exchange of information;

(g) Poor and inefficient household energy-use practices and the associated indoor air pollution;

(h) Inadequate, underfunded and underdeveloped research infrastructure and skills.

B. Progress and achievements

15. Participants noted some achievements made by African countries, including the following:

(a) Implementation of the Southern African Fire Atmosphere Research Initiative, whose targets include gathering of data and information on smoke and gases released into the atmosphere by industry, biological sources and the burning of African forests and savannas;

(b) The International Geosphere Biosphere Programme, which supported many regional and global-scale studies focusing on emissions from Africa, through the International Global Atmospheric Chemistry core project;

(c) The System for Analysis, Research and Training, which establishes and fosters regional networks of collaborating scientists and institutions in developing countries;

(d) The establishment of the Global Atmosphere Watch station for sub-Saharan Africa, which provides measurements for long-term monitoring of greenhouse gases and aerosols and the complex atmospheric chemical reactions that determine the depletion, transformation, lifetimes and transport of these gases and particles that contribute to climate change. The station will contribute to the detection and interpretation of future changes in the chemical composition of the tropical areas within and outside Africa;

(e) Increased adoption of improved wood fuel stoves and cleaner energy sources;

(f) The establishment of a regional network of African urban air pollution experts, and the World Bank's Clean Air Initiative that have contributed to information-sharing for policymakers and to raising public awareness;

(g) The launching of Air Pollution Information for Africa, a network of scientists, policymakers, industry and non-governmental organizations, formed to address issues related to air pollution in southern Africa;

(h) Introduction of policies, legal frameworks, financial incentives and subsidies demonstrating willingness and commitment by some African countries to deal with the problems of air and atmospheric pollution;

(i) The increased number of African countries that have taken concrete steps to phase out leaded gasoline and are piloting hybrid cars and biofuel in their transport sectors;

(j) The increased adoption of energy efficiency policies, strategies and practices;

(k) The development by a number of countries of an air pollution data collection and observation capability.

C. Lessons learned and the way forward

16. Participants identified the following key lessons and possible approaches:

(a) There is a need to increase the role played by government and industry in implementing policies to reduce air and atmospheric pollution, supplemented by the work of civil society, including through the implementation of environmentally sound technologies;

(b) There is a need to identify new means of financing to enable industry to gain access to state-of-the-art technologies and shift from using second-hand and unclean technologies;

(c) Microfinance institutions are interested in financing cleaner energies and technologies for households and small businesses;

(d) There is a need to significantly scale up best practices and tested air pollution reduction and mitigation options in all sectors;

(e) There is a need to scale up data collection and observation capacities and activities;

(f) While capacity has been built among African scientists through participation in international research initiatives, there is still a need to develop

strategies to increase and retain research capacity, skills and infrastructure in the area of air and atmospheric pollution;

(g) Localized air pollution projects are not always comprehensive and can sometimes transfer the pollution from one site to another. As such, an integrated and regional approach should be adopted when addressing air pollution issues.

IV. Climate change

A. Challenges

17. Participants identified challenges to mitigation and adaptation to the impact of climate change, including:

(a) The high vulnerability and low capacity to mitigate and adapt to the impact of climate change by African countries as a result of poor access to technology, high poverty levels and reliance on rain-fed agriculture;

(b) The inability among the poorest and the most vulnerable, particularly small island developing States, to develop social, economic and environmental resilience against extreme climate events;

(c) Inability and inadequate support to African countries to cope with the current climate variability, thereby limiting the capacity to build resilience to the impact of climate change;

(d) Inadequate integration and implementation of climate change concerns in national development policies and plans and local-level programmes;

(e) Operationalization of the Kyoto Protocol as a result of inadequate technical and institutional competence, and especially the lack of, and non-operational, designated national authorities in some countries; low awareness and poor competitiveness of African clean development mechanisms in projects due to high transaction costs; complex and stringent approval processes;

(f) Low levels of research, scientific capacity and intraregional cooperation on vulnerability, impact, mitigation, adaptation assessment and evaluation.

B. Progress and achievements

18. The meeting noted the achievements by African countries in addressing climate change:

Implementing obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol

(a) African countries have ratified and committed themselves to the implementation of the United Nations Framework Convention on Climate Change, while more than 60 per cent of African countries have ratified the Kyoto Protocol;

(b) Initial national communications have been prepared and submitted to the United Nations Framework Convention on Climate Change, with most countries preparing their second national communications;

(c) There has been increased regional cooperation, including the development and implementation of the NEPAD initiative on climate change;

Mitigation and adaptation

(d) Enhanced subregional cooperation and establishment of the Southern African Regional Climate Outlook Forums for early warning and improved information-sharing to reduce farmer and other vulnerabilities within the SADC subregion;

(e) Policy reforms to control environmental degradation (e.g. deforestation);

(f) Establishment and strengthening of policy research institutions (think tanks), such as the African Centre for Technology Studies (East Africa), the Environnement et Développement du Tiers-monde (West Africa) and the Zimbabwe Environmental Research Group (Southern Africa), to respond to climate change related challenges identified by the United Nations Framework Convention on Climate Change;

(g) Establishment, with funding from the World Meteorological Organization, of the drought monitoring centre in Nairobi, with sub-centres in Niamey and Harare for monitoring, forecasting and timely early warning in the region;

(h) Implementation of 11 projects to carry out assessment of impacts and adaptation to climate change and supporting many countries to prepare a national adaptation programme of action;

(i) Implementation of the project on strengthening the capacity of civil society in least developed countries for adaptation to climate change;

(j) Sixteen African countries have designated national authorities to approve clean development mechanism projects;

(k) Community development carbon fund projects have been developed in some countries through a special World Bank programme for Africa;

(l) Implementation of 18 Activities Implemented Jointly projects in some countries;

(m) Development of new, innovative and other technologies and methods to deal with challenges brought about by climate variability and change. These include the adoption of drought-resistant improved farming technologies and crop diversification, water conservation and harvesting technologies, use of efficient non-polluting energy sources and mosquito nets for malaria control;

(n) Many Governments have established disaster management centres, with households, communities and civil society organizations having developed a number of coping mechanisms in response to extreme climatic events.

C. Lessons learned and the way forward

19. The meeting identified the following key lessons and possible approaches:

(a) Climate change needs to be tackled in an integrated manner, an approach that should be promoted at all levels;

(b) Need for enhanced integration into and implementation of climate change mitigation and adaptation concerns into national development policy and poverty reduction strategy papers;

(c) In line with a national adaptation programme of action, there is need to develop human and institutional capacities to promote and aid adaptation to climate change at national and local levels where vulnerabilities are most pronounced;

(d) There is need to work with, and build the capacity of, civil society, community-based organizations and the private sector to strengthen the social, economic and environmental resilience of vulnerable local communities;

(e) There is a need for continued support for research and information collection and dissemination and strengthening of networking to raise awareness and inform policy formulation, planning, decision-making, investment and action;

(f) African countries have benefited mainly from capacity-building on the clean development mechanisms implemented through support programmes and pilot projects, rather than from actual high-impact project investments;

(g) There is, therefore, a need to increase African countries' access to the funds and benefit from the Kyoto mechanisms and Marrakesh funds by improving technical and institutional competence, establishing and operationalization of designated national authorities and reducing high transaction costs and streamlining approval processes;

(h) African countries need to identify and mobilize alternative local resources, including the introduction of incentives and disincentives for the private sector to invest in and support climate change mitigation and adaptation programmes;

(i) There is need to build scientific capacity and cooperation to deal with different aspects of climate change;

(j) There is need to enhance support and accelerate implementation of the NEPAD climate change initiative.

V. Industrial development

A. Challenges and constraints

20. The meeting identified the following challenges and constraints:

(a) Tariff and non-tariff trade barriers together with lack of local processing capability hinder market access and perpetuate Africa's condition as exporter of unprocessed raw materials;

(b) Lack of capacity, a conducive business and policy environment, financial and other support for growth, structural change and economic diversification of the small-scale and informal enterprises that dominate the private sector in Africa;

(c) Lack of appropriate industrial development strategies to facilitate and maximize the integration of the large-scale industries mainly concentrated in the extractive sector (e.g. oil, gas and minerals) with other sectors of local economies;

(d) Infrastructure, energy and water bottlenecks make the transition to sustainable industrialization more difficult;

(e) The management and deployment of local skill base and other exploitation of the potential of knowledge-based industries;

(f) Limited ability to tap into global production networks, such as participating in offshoring and outsourcing arrangements;

(g) Limited research and development, innovation, diversification and technology diffusion;

(h) Lack of a critical mass of companies and institutions willing to cooperate, network and share industrial development knowledge and information in pursuit of sustainable development, also obstructed by weak industrial associations;

(i) Limited government capacity to render and facilitate extension services, including those related to testing, metrology, certification, quality assurance and accreditation of industrial and micro and small-scale enterprise development processes;

(j) Due to their preference for sectors with faster returns (such as the services sector), the current banking and investment decisions and practices constrain industrial development of small and medium-sized enterprises;

(k) Inadequate harmonization of laws, regulations, codes and standards at national and subregional levels limits factor flows (financial, human and technical resources), which could help realize economies of scale, establish intraregional synergies and enhance competitiveness;

(l) Small local markets, lack of appropriate marketing channels and inadequate exploitation of information and communication technologies, regional trade, cooperation and integration to expand and establish new markets.

B. Progress and achievements

21. The meeting identified the following achievements at the country level:

(a) Rural development has been fostered in some countries through the establishment of agro-processing and micro and small-scale enterprises by facilitating access to finance and technology transfer, capacity-building for the development of growth-oriented and competitive micro and small-scale enterprises, with increased empowerment of women;

(b) Metrology, standards, certification, testing and quality assurance institutions have been strengthened in some countries;

(c) There has been progress in the provision of energy, including the development of renewable energy technologies and implementation of energy efficiency programmes;

(d) Establishment of national cleaner production centres;

(e) Development of industrial environmental policy, regulation and guidelines, including the adoption of corporate social responsibility codes in some countries;

(f) Establishment of national industrial information networks, capacity-building on information technology and promotion of linkages between research and development institutions and industry;

(g) Development of policies for investment promotion and foreign direct investment, including the launching of the United Nations Industrial Development Organization-Africa Investment Promotion Network and various other national and subregional investment promotion efforts.

C. Lessons learned and the way forward

22. The meeting identified the following lessons learned:

(a) There is a need to ensure that chemicals are produced, transported, used and disposed of throughout their full life cycle within a sustainable development context that is protective of human health and the environment, including, inter alia, compliance with the provisions of the Basel, Stockholm and other related conventions; the implementation of national laws and policy instruments in the context of national environmental management regimes must also be enhanced;

(b) There is a need for broader adoption and implementation by industry of values consistent with corporate social and environmental responsibility, such as those embodied in the Global Compact Initiative, and to explore an International Organization for Standardization standard on corporate-social responsibility;

(c) There is a need to identify gaps in, and enhance, policy integration and institutional coordination, including among entities responsible for the implementation of multilateral environmental agreements at various levels;

(d) There is a need to promote global cooperation and partnerships for the development and implementation of cleaner production processes and adoption of new and safer technologies;

(e) There is a need to develop country-specific technical assistance programmes that will respond to the unique needs of each country and region.

VI. Conclusion

23. Participants in the regional implementation meeting reaffirmed the commitment of African countries to taking concrete action to meet Africa's challenges in the fields of energy, industrial development, atmosphere/air pollution and climate change, with a view to achieving sustainable development, through the implementation of internationally agreed development agreements, including Agenda 21, the Millennium Declaration, the Johannesburg Plan of Implementation and other international conferences in social, economic and related fields.

24. Participants underscored the importance of the political leadership of the African Union structures and, in particular, the pivotal role of NEPAD as the framework for achieving set objectives.

25. Participants acknowledged that though progress had been made in meeting some of the targets, including through the elaboration and implementation of poverty reduction strategy papers and national sustainable development strategies, more action was needed, particularly, in putting in place enabling policies and

strategies, increasing political will, scientific capacity development, and developing intra and interregional networking and cooperation.

26. Recognizing the critical need for additional financial and human resources and the importance of partnership, participants underscored the need for the mobilization of adequate resources, both internally and externally, and for strengthening of partnerships for the implementation of programmes and projects in the fields of energy, industrial development, atmosphere/air pollution and climate change.

27. Participants recognized and expressed their appreciation for the role played by the United Nations system through its various specialized and intergovernmental agencies and organs, as well as for the various international partners and organizations that support Africa's efforts and actions in achieving sustainable development. Participants also expressed their appreciation for the commitments made by the Group of Eight in support for Africa's sustainable development agenda.

28. The participants endorsed the outcome of the meeting for presentation as Africa's contribution to the fourteenth session of the United Nations Commission on Sustainable Development, scheduled to be held in New York in May 2006.

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Report of the Regional Implementation Meeting of the Economic and Social Commission for Western Asia

I. Introduction

1. The Commission on Sustainable Development, at its fourteenth session to be held from 1 to 12 May 2006, will undertake a review of progress achieved at all levels in the implementation of commitments, targets and goals on the thematic cluster of "Energy for sustainable development, atmosphere/air pollution, climate change and industrial development".

2. The report of the Secretary-General, to be submitted to the Commission on Sustainable Development at its fourteenth session, will present a review of the state of the progress achieved at all levels in the implementation of the commitments, goals and targets related to the four thematic areas agreed upon in Agenda 21,[1] the Programme for the Further Implementation of Agenda 21,[2] the ninth session of the Commission and the Plan of Implementation of the World Summit on Sustainable Development ("Johannesburg Plan of Implementation").[3]

3. The Arab region consists of 22 countries, 10 in Africa and 12 in Western Asia. In 2003, the total population of the Arab region was 305 million, representing 4.7 per cent of the world's population. However, population size varied remarkably among the countries of the region, ranging from 67.3 million in Egypt to less than 1 million in Qatar, Djibouti and Bahrain. In the last two decades, the Arab population grew at an average rate of 2.6 per cent per annum, in comparison with a rate of 1.5 per cent per annum in the rest of the world, with an increase in the proportion of urban population from 44 to almost 54 per cent. The proportion of rural population varies widely among the countries in the region; in 2002, that proportion ranged from a figure as low as 4.0 per cent in Kuwait to one as high as 75.3 per cent in Yemen, with a regional average of 46.3 per cent, which represented about 139 million persons in rural areas in 2002.

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4. In the human development index of the United Nations Development Programme (UNDP) *Human Development Report, 2004*,[4] where 177 countries were categorized according to level of human development, the Arab countries ranged in rank from "medium" (the Gulf Cooperation Council (GCC) countries and the Libyan Arab Jamahiriya) to "low" and "very low" (Mauritania ranked 152 with a Human Development Index for 2002 of 0.465). Meanwhile, the development and poverty situations in the region are highly uneven and poverty is a serious problem in most of the Arab countries. In 2003, five countries in the region had a gross domestic product (GDP) per capita of about $1 per day. Almost 85.0 million, constituting almost 30 per cent of the region's total population, had been below the poverty line of $2 per day in the year 2000, excluding Somalia which is classified as a low-income country under stress.

5. The present report has been prepared to serve as the Arab regional review report on progress achieved at regional and subregional levels in the implementation of the commitments, goals and targets related to the four areas of the thematic cluster of issues for the implementation cycle 2006-2007 to be addressed at the fourteenth session of the Commission on Sustainable Development; it also reflects on the challenges and opportunities related to the implementation of such goals and targets in the Arab region as well as spotlights the priority areas for action for further implementation in the four thematic areas.

6. The report has been prepared through a process of collaboration among the League of Arab States, the Economic and Social Commission for Western Asia (ESCWA) and the United Nations Environment Programme Regional Office for West Asia (UNEP/ROWA). It incorporates the country inputs and comments received before and during the regional Arab conference on "Energy for Sustainable Development and Related Environmental Issues", held in Cairo from 10 to 12 September 2005. It was discussed and agreed upon by the Arab Regional Implementation Meeting in association with the Joint Committee on Environment and Development in the Arab Region during its seventh session held in Cairo from 13 to 15 November 2005.

7. The report comprises four main sections, on:

(a) Energy for sustainable development;

(b) Atmosphere/air pollution;

(c) Climate change;

(d) Industrial development.

II. Energy for sustainable development

A. Status of the Arab energy sector[5,6,7]

8. The Arab energy sector has played and will continue to play an important role globally as well as within the region. It is serving as the source of oil and gas export revenues and satisfying energy needs for economic and social development; however, in many cases, the efficiency of energy production and consumption patterns in the region requires improvement. More than 40 per cent of the population in rural and urban poor areas do not have access to energy services or are

highly underserviced. The move towards achieving the objectives of energy for sustainable development requires action to solve such problems, while maintaining the effective contribution of the sector to the region's economy. The following is a brief overview of the current status of the energy sector in the Arab region, which highlights the relation among energy access, human development and poverty in the region.

9. The Arab energy sector is characterized by a huge oil and gas sector and a large electric power sector which is dominated by thermal power generation (92 per cent). On the end-use side, the sector is serving all other sectors, of which the highest consuming ones are the transport, residential, industry and utility power sectors.

10. The Arab oil and gas sector represents the largest economic sector in the region. In 2003, the total proved reserves of crude oil in the Arab countries reached 650 billion barrels, representing 57.0 per cent of the world total reserves, while those of natural gas were estimated at about 52.3 trillion cubic meters (m^3), representing about 30 per cent of the world proved reserves. The region also enjoys good renewable energy resources with 8,967 megawatts (MW) of installed hydroelectric capacity. Solar resources vary between 1,460 and 3,000 kilowatt-hours per square metre (KWh/m^2) per year. Wind resources are also available in several Arab countries.

11. The electrification rates in the Arab countries in 2000 had varied from 100 per cent in Kuwait to 7.7 per cent in the Comoros, Djibouti, Mauritania and Somalia, with an average of about 79 per cent, compared with a world average of about 72.8 per cent and an average in the developing countries of 64.2 per cent. In 2003, about 64.3 million people, representing 21.4 per cent of the Arab population, had no access to electricity, and as many were severely undersupplied, both in rural and in poor urban areas. It is also to be noted that almost one fifth of the Arab population rely on non-commercial fuels for different energy uses. Poverty, which has a direct link to access to energy, is a serious problem in many Arab countries and there is an urgent need for vigorous new policies to increase accessibility to energy of rural and urban areas with the aim of addressing energy needs and mitigating human poverty.

12. The total 2003 primary energy production in the Arab region was about 28.9 million barrels of oil equivalent per day. The oil and natural gas shares reached 77.3 per cent and 22.2 per cent, respectively. The generated electricity in 2003 in the region was about 509,800 gigawatt-hours (GWh). The production of hydroelectricity reached 145,400 barrels of oil equivalent per day (about 7.3 million tons of oil equivalent per year), while the new renewables, including mainly solar water-heaters, small-scale photovoltaic applications and wind farms, totalled about 1.0 million tons of oil equivalent per year (20,000 barrels of oil equivalent per day).

13. The total consumed commercial primary energy in 2003 was about 364.0 million tons of oil equivalent with a growth rate of 4.2 per cent between 1996 and 2002. The shares of energy resources in such consumption were 52.3, 45.3 and 2.5 per cent for oil, natural gas and hydro resources, respectively. These figures reflect the gradual increase in the share of natural gas in primary energy consumption during the 1990s. The total installed capacity in 2003 reached 115,828 MW excluding the Comoros. Such huge capacity was dominated by thermal power stations accounting for more than 92 per cent. Electricity consumption reached 443.6 GWh accounting for 87 per cent of the total generated electricity.

14. The residential, industrial and transport sectors are the major energy consuming sectors in the Arab region. The residential sector consumes about 55.5 per cent of total electricity and 17.9 per cent of total petroleum products in the region. By contrast, the industrial sector consumes only 26 per cent of generated electricity and 16.7 per cent of the petroleum products; the transport sector remains the largest consumer of petroleum products, accounting for 43 per cent of total regional petroleum consumption, although it consumes very little electricity. Energy consumption indicators in 2003, were as follows:

(a) The average primary energy consumption in the region reached 1,196 kilograms of oil equivalent per capita, compared with the world average of 1,523 kilograms of oil equivalent per capita. Wide disparities exist in the levels of energy consumption within and between Arab countries;

(b) The average electricity consumption reached 1,445 kilowatt-hours per capita regionally, compared with the world average of 2,271 kilowatt-hours per capita;

(c) The average primary energy intensity in the region was 0.51 kilograms of oil equivalent per United States dollar compared with a world average of 0.27 kilograms of oil equivalent per United States dollar, reflecting the low economic returns on energy consumption in the region.

B. Progress achieved[8,9,10,11]

15. Since 1992, national authorities in Arab countries have devoted efforts to improving the sustainability of their energy sector. Such efforts covered most of the goals and targets relevant to the key energy issues identified by Agenda 21, the Programme for the Further Implementation of Agenda 21, the ninth session of the Commission on Sustainable Development and the Johannesburg Plan of Implementation. Some progress was achieved; however, steps are still required to further adopt sustainable energy policies and measures that can support the sector's contribution in respect of achieving sustainable development. In addition, several regional initiatives and activities were implemented, either among countries in the region or by the concerned United Nations organizations, and regional Arab organizations.

1. Integration of energy policies

16. During the last three decades, energy policies in the Arab region were directed mainly towards satisfying the needs of the development programmes and upgrading the sector's infrastructure and capabilities.

17. The fact that energy prices in the region are highly subsidized has led to accelerated demand growth rates, low energy use efficiencies, and the need for high capital investment. Therefore, in recognition of the need to move towards more economic and sustainable management of the sector, countries in the region have revised their energy policies and included one or several of the following sector sustainability policies:

(a) To increase energy access for all communities mainly in rural and remote areas;

(b) To review existing tariffs so as to support the economic management of the sector while maintaining energy subsidies for the poor;

(c) To enhance investments in oil and gas exploration and production activities, using cleaner technologies, and to adopt measures for reducing the sector's environmental impacts;

(d) To study and implement intraregional electric grid interconnections and natural gas networks projects;

(e) To encourage private sector participation in the establishment and management of energy facilities, including power plants and distribution networks;

(f) To adopt measures and programmes for upgrading energy production and consumption efficiencies, particularly in energy-intensive industries, transport and power;

(g) To introduce the use of cleaner fuels;

(h) To consider developing renewable energy technologies and promoting their application, as appropriate.

2. Energy accessibility and poverty alleviation

18. Since 1992, energy services in most of the Arab countries have been increasingly extended to new groups of consumers. However, the average electrification rate in the region is still 79 per cent and is as low as 7.7 per cent in several countries. A high proportion of the rural and urban poor population are suffering from the lack of reliable modern fuel supplies. Therefore, there is a crucial need in the region for enhancing energy services accessibility to deal with rising poverty and facilitate economic development. Very limited resources are directed towards rural energy supplies, with the exception of a few regional and international cooperation projects for promoting renewable energy for rural areas.

3. Changing production and consumption patterns

19. In the field of energy efficiency, several Arab countries have adopted policies and programmes for encouraging energy conservation and efficiency in various economic sectors, particularly the residential, industrial, transport and electric power sectors. During the last few years, the Arab countries have directed efforts towards improving energy efficiency; and a number of major initiatives have been or are being implemented by different national organizations and institutes supported by regional and international organizations and institutes. The main results of such activities were the following:

(a) Energy audits were performed in many public and private industrial and residential facilities;

(b) Opportunities to improve the efficiency of thermal and electrical energy in industrial facilities now exist. The estimated potential achievable savings vary between 13 and 40 per cent of the total energy consumed by industry in the different countries;

(c) Programmes to improve energy efficiency were implemented, and have led to the training of large groups including high-level administration, engineers,

technicians and staff of energy service companies, and the development of a database in this area;

(d) Field projects were implemented in the residential, industrial and transport sectors.

20. The above-mentioned activities have resulted in a number of changes including a slight reduction in the growth rates of primary energy consumption, and improved efficiency of electric power plants and reduction in specific fuel consumption, as well as several codes of practice for efficient energy use in buildings and for energy appliances, in addition to energy labelling regulations.

21. In the field of renewable energy, apart from the use of solar water-heaters and photovoltaic small-scale applications, limited progress has been achieved in promoting the use of renewable energy technologies in the Arab countries. Large-scale wind farms are also currently in operation in some countries. However, ambitious targets are currently set by some countries in the region. In addition, some countries in the region have taken steps to install combined-cycle solar thermal power plants.

22. In the field of cleaner and advanced fossil fuel technologies, the last decade witnessed an increase in the share of natural gas in the energy mix of Arab countries, which reached 45.0 per cent of the total energy consumption in the region in 2001. Moreover, the installed capacity of the combined-cycle electricity generation plants using natural gas increased, reaching about 8,456 MW in 2001; and advances have been realized in the use of liquefied petroleum gas, compressed natural gas, unleaded gasoline and low-sulphur diesel. Meanwhile, the oil and gas sector has adopted the use of different advanced and clean fuel technologies in its operations. Measures adopted in the region to improve fuel qualities include:

(a) Upgrading the technologies of oil refineries, where increasing the capacity of treatment and conversion processes is an indicator of the potential of a refinery to produce high-quality fuels;

(b) Improving fuel specifications (using cleaner fossil fuel to reduce emissions);

(c) Switching to natural gas, wherever technically and economically feasible;

(d) Adopting vehicles inspection and maintenance programmes and upgrading the status of fleets.

23. Concerning the use of energy in transport, the share of transport in the Arab regions in primary energy consumption had attained a level of about 26.3 per cent by the end of 2003. This sector is one of the main sources of air quality degradation in major Arab cities and urbanized areas. A wide range of plans and measures to solve transportation problems have been adopted in many countries of the region. The main objectives of these plans are to reduce traffic jams in major cities, reduce air and noise pollution, save energy, and cut trip duration inside these cities. Most major cities have witnessed the creation of large-scale projects for developing modern transport infrastructure such as highways, new circular roads, bridges, tunnels, computerized traffic control, etc.

4. Cross-cutting issues

24. These activities and projects, which have resulted in considerable achievements, have also led to progress on different cross-cutting issues relevant to energy for sustainable development, particularly institution- and capacity-building, raising awareness, information-sharing and technology transfer in the field.

25. A number of meetings, seminars and workshops have been organized by United Nations and Arab regional organizations, with a view to improving stakeholder capacities and increasing awareness on issues such as private sector involvement, clean fuel and energy efficiency. As a result, some member countries have undertaken measures in this direction, including:

(a) Private sector involvement in the power sector;

(b) Development of a renewable energy strategy in rural areas;

(c) Building a pilot project on wind farms, policies for improving energy sector sustainability, and private sector involvement;

(d) Plans to introduce compressed gas technology for land transport;

(e) Private sector involvement in generation and management of power sector;

(f) Establishment of national energy efficiency programmes.

5. Regional cooperation projects

26. Numerous cooperation and integration projects have been undertaken by Arab countries in the field of energy, including joint projects to link electricity networks, and projects to establish oil and natural gas pipelines and networks. Notably, there are also numerous bilateral cooperation agreements in the production of energy equipment, development of the uses of renewable energy and rationalization of energy consumption.

27. Projects on electrical grid interconnection between the Arab countries have made considerable progress in recent years. A number of projects on subregional grid interconnection between Arab countries are at different stages of implementation and operation, namely, those involving:[12]

(a) Egypt, Jordan, the Syrian Arab Republic, Lebanon, Iraq, the Libyan Arab Jamahiriya and Turkey;

(b) Arab Maghreb countries (including a connection with Europe);

(c) Gulf Cooperation Council countries.

28. During the three past decades, the importance of natural gas in energy installations has increased, globally and regionally. A number of natural gas projects are at different stages of implementation and operation. These projects include:

(a) An Arab gas line between Egypt, Jordan, the Syrian Arab Republic and Lebanon (with future prospects of transferring gas to Cyprus, Turkey and Europe);

(b) The dolphin natural gas pipeline projects linking Qatar and the United Arab Emirates, with future extension to Oman);

(c) Natural gas projects involving Northern African Arab countries, and projects linking those countries and Europe.

29. From the example of the above-mentioned projects, it is evident that the Arab countries have achieved substantial progress in subregional electric connections, and in the natural gas network among Arab countries and with their neighbours.

6. Regional initiatives

30. A partnership on energy for sustainable development has already been established through the Council of Arab Ministers Responsible for the Environment (CAMRE) in close cooperation with concerned regional organizations, including the Organization of Arab Petroleum Exporting Countries, UNEP and ESCWA. Such organizations have initiated activities and achieved progress in this field and others through studies, inter alia, on energy, development and the environment undertaken to review and evaluate existing strategies, policies and experiences. The principal Arab declarations that have been issued with a view to expressing the concerns and commitments of the Arab countries in respect of the achievement of sustainable development are:

(a) The Abu Dhabi Declaration on the Future of Environmental Action in the Arab World (2001) (A/55/846, annex);

(b) The Arab Initiative for Sustainable Development (2002);

(c) The Abu Dhabi Declaration on Environment and Energy (2003);

(d) The Sana'a Statement on Renewable Energy and Sustainable Development (2004).

31. In the Abu Dhabi Declaration on Environment and Energy, the Arab Ministers of Energy and Ministers of Environment agreed on a broad framework of measures and programmes expressing their political will towards developing a more effective role of the energy sector in the achievement of sustainable development in the region, and emphasizing the following:

(a) The right of Arab countries to undertake the development and use of their energy resources, while securing oil and gas flows to international markets, particularly for countries depending on oil and gas revenues;

(b) The importance of achieving sustainable development and alleviating poverty in the region, through increasing access to affordable, reliable energy services, particularly for rural and remote areas, using a mix of available conventional and renewable energy resources;

(c) The need for developing national strategies for promoting the sustainability of the Arab energy sector;

(d) The importance of promoting regional energy integration projects, particularly electric grid interconnections and natural gas networks;

(e) The importance of calling on developed countries to adopt measures and programmes and provide financial resources to support developing countries in their programmes for achieving sustainable development, with particular emphasis on research and development (R&D), capacity-building and technology transfer.

32. In addition, since 2002, countries in the region have issued several rules, pieces of legislations and resolutions related to the conservation of the environment. Some of them addressed energy for sustainable development, such as the resolution adopted by the Supreme Council of the Gulf Cooperation Council at its twenty-fifth session (Manama, 20 and 21 December 2004). Meanwhile, some networking and cooperation mechanisms have been established to enhance regional cooperation on issues addressed by the Commission on Sustainable Development at its ninth session. The ESCWA regional promotional mechanism on energy systems for sustainable development was established in 2000 as a regional network of concerned authorities established to accelerate the development of and field application for such systems.

C. Challenges, opportunities and areas for future action[9]

33. The present section examines the challenges to be faced in the move towards achieving the objectives of energy for sustainable development in the Arab region and identifies opportunities and future actions for improving the contribution of the energy sector to achieving sustainable development in the region.

1. Challenges

34. For energy to be a means of supporting sustainable development, it is preferable to concentrate on delivering energy services that can meet the needs of the people, using a variety of technologies and fuels tailored to local conditions, rather than to simply work towards increasing energy supplies.

35. Several challenges are facing the Arab energy sector, which can be addressed mainly by:

(a) Responding to the rapidly increasing energy demand, due to rapid population growth, and the need to increase energy supplies so as to reach the approximately 21.4 per cent of populations that currently do not have access to electricity;

(b) Integrating sustainable energy strategies, plans and objectives within national development strategies, policies and plans, as well as integrating sectoral energy policies within national ones;

(c) Improving the economic management of the energy sector, since heavily subsidized energy tariffs have led to the reduction of the sector's revenues and limited the opportunities for the private investments needed to increase energy access to rural areas;

(d) Increasing the access of rural and remote areas to energy supplies, which is a prerequisite for poverty alleviation and economic and social development;

(e) Improving energy production and consumption efficiencies, with the goal of minimizing resources depletion and reducing environmental impacts;

(f) Upgrading institutional support, the marginal cooperation among stakeholders and the low level of awareness on the available technologies and technology transfers;

(g) Strengthening and promoting the currently limited regional and international cooperation on energy for sustainable development;

(h) Mobilizing funds for capacity-building, technology transfer and energy systems so as to meet increased energy demand;

(i) Improving data availability and consistency on relevant energy policies and systems.

2. Opportunities

36. In spite of the possible challenges to be faced in the course of achieving the targeted objectives, there are several opportunities for supporting the realization of the targeted objectives in moving towards energy systems for sustainable envelopment in the Arab region. For example:

(a) The focus of the Johannesburg Plan of Action on poverty alleviation and the development of sustainable energy patterns as being among the most central goals of sustainable development, will foster the inclusion of relevant energy needs and projects for poverty alleviation in the high-priority agenda at all levels — national, regional and international;

(b) The Johannesburg Plan of Implementation and the Commission on Sustainable Development in its follow-up on implementation have called on developed countries and funding agencies to support, to the maximum, developing countries in their efforts in the areas of research and development, technology transfer and capacity-building on energy for sustainable development, as well as to make funds available for such activities. This represents an opportunity for Arab countries to formulate project proposals and request both financial and technical support from developed countries, United Nations organizations and funding agencies on the basis of the two main considerations presented above;

(c) There are available international mechanisms for supporting technology transfer and capacity-building in the field, which can be utilized by Arab countries, such as the Clean Development Mechanism, the Global Environment Facility, official development assistance (ODA) and the New Partnership for Africa's Development (A/57/304, annex). The Partnership provides a good opportunity for Arab countries in Africa to obtain support for increasing energy access to rural poor areas;

(d) The fact that implemented energy activities in the Arab countries have helped create human expertise and local capabilities could be an incentive for supporting the efforts towards achieving energy for sustainable development. In addition, these efforts have fostered an environment within which the private sector can contribute to such efforts in this field;

(e) The available regional and subregional mechanisms, in relevant areas, can join forces in order to enhance regional cooperation in the field;

(f) The Arab regional integration projects on electricity grid interconnection, gas networking and energy industries, as discussed in this report, have a positive role to play in respect of achieving energy sector sustainability and promoting subregional and regional capacities in the field.

3. Priority areas for action

37. Four priority areas of actions have been identified based on the situation of the energy sector in the Arab countries, the concerns addressed by the Abu Dhabi Declaration on Energy and Environment, the urgent need to alleviate poverty and the extremely low energy accessibility in several Arab countries, particularly in Africa. These priority areas include:

(a) Poverty alleviation through enhancing access to modern energy services so as to foster economic and social development in rural and poor urban areas, in line with the Millennium Development Goal of reducing by half, between 1990 and 2015, the proportion of people living in extreme poverty;

(b) Improving energy production and consumption efficiencies in all sectors, particularly the sectors with the highest energy consumption, so as to enhance the economic return on energy consumption (that is to say, improve energy intensities);

(c) Diversification of energy resources used, in terms of conventional and renewable resources, as appropriate to countries' circumstances, and using locally available resources and expertise to secure affordable and environmentally sound energy services;

(d) Developing and increasing use of cleaner fuels and developing advanced fossil fuel technologies, particularly in the transport and power sectors, as well as enhancing oil and gas exploration activities.

38. Clearly, each of these priority areas has to be considered within the framework of energy resources and needs and the sector's status in each country.

III. Atmosphere/air pollution

39. The issue of air quality and atmospheric pollution in the Arab region has been addressed through consideration of the energy production and energy consumption pattern. Global, regional and local sources of air pollution in the region have been examined. The emission scenarios of many countries of the region have been outlined. Variable institutional capabilities for air pollution management and control still prevail among countries in the region.

40. Major types of pollution sources in the region such as dust storms and sandstorms, greenhouse gas emissions and other gases from various industries have been discussed. Local sources linked to urban growth, transportation systems, industrialization, and insufficient awareness and shortage of institutional capabilities also contribute to the relatively low quality of the air and inadequate control. The risk of radioactive contamination from old nuclear reactors in the region, and lack of contingency plans has not been taken into consideration. Examples of potential impacts of air pollution on the gross national product and potential impacts of climate change on various economic and health sectors have also been investigated and addressed to varying degrees among countries of the region.

41. Ground-based monitoring networks as well as capabilities of satellite monitoring systems have been considered and the needs for capacity-building on new air pollution monitoring and control techniques have also been addressed. The need for a shift in fuel strategy with particular emphasis on transportation systems,

industry and urban systems has been emphasized based on needs and priorities relevant to different countries in the region.

42. On the regional and local scales, priorities for action have been addressed for improving consumption patterns, upgrading air quality and promoting better governance and public participation for sustainable development.

A. Progress achieved

43. On national scales, there exists the realization that local anthropogenic air pollution implies inefficiency of energy utilization and consumption and economic losses. In addition, it is well understood that air pollution is responsible for some human health problems, and loss of environmental productivity. Nowadays, air quality is considered an indicator of the quality of life and sustainable development in many areas of the Arab region. As a result, air pollution control strategies have also been taken seriously in some countries of the Arab region, and important steps have been taken in this regard.

44. Efforts of international organizations to illustrate, identify, assess and study options for actions have been in progress for about two decades. Some success has been noted on the global scale. Unfortunately, the fact that regional and local efforts drastically lag behind in some member States requires immediate attention. This applies to the Arab region where efforts in developing institutional capability and technical support for air pollution control have been very limited.

45. Air pollution management requires capacity-building, ground-based monitoring systems and networks for proper operation and strategic decision support. It also requires accreditation, quality assurance and quality control, modelling tools and institutional capabilities for implementation. Such needs differ from one country to another in the region.

46. Most Arab States have already passed legislation to protect the environment. Numerous air quality standards have also been issued in conformity with international guidelines. In this regard, several Arab countries are monitoring and collecting air quality data in major cities and urban centres through the establishment of monitoring networks, and employing efficient pollution control measures. As a result of the adopting of programmes for cleaner energy, the employing of new and efficient technologies and the setting of environmental standards, improvements in air quality have been observed in the region.

B. Priority areas for further actions

47. There is a need to establish new, and improve existing, air pollution monitoring and control programmes for mobile and stationary emission sources, and to continue the assessment and analysis of ambient air data. Meteorological profiles of the atmosphere must be monitored on a reasonable scale to allow better interpretation of air pollution dispersion dynamics in urban areas, and hence the exercising of better control. It is necessary to use sound urban planning for cities with support systems that are environmentally sound and have low energy consumption. Cities should also use modern efficient traffic management systems to reduce traffic idle time, which produces peak emissions. It is also necessary to

continue efforts to phase out leaded gasoline, replace ageing vehicles and industrial production facilities, increase availability of cleaner fuel including natural gas stations and intensify forestation. It is also necessary to upgrade and update monitoring networks, data analysis and assessment, capacity-building and accreditation.

48. Joint programmes are needed to address common priorities of the countries in the region in the domain of air pollution monitoring and control, assessment of impacts associated with air pollution, and the exchange and dissemination of air pollution data. Developing subregional/regional air quality networks and a regional centre of excellence should be considered a matter of priority.

49. The international community is urged to provide technical and financial assistance to address the issue of air quality and atmospheric pollution, including transboundary air pollution.

IV. Climate change

50. Following ratification of the United Nations Framework Convention on Climate Change,[13] national climate change committees were established and some countries have started to monitor air quality and meteorological parameters. National inventories of greenhouse gases have been completed for several countries and work thereon is under way in others.[14]

A. General issues of concern

51. There are aspects of climatic circumstances including variations in rainfall and water resources that are specific to Arab countries. Most of the Arab countries are located in the arid and semi-arid zones where the climate is extremely hot and humid in the summertime, which is approximately between seven and nine months long. In most countries, during the summer, temperatures could exceed 50 degrees Celsius, and humidity exceeds 90 per cent in coastal areas. In addition, the region suffers most of the year from deficient precipitation which ranges from 50 to 150 millimetres (mm). The hot and humid climate requires extensive use of indoor air conditioning. In addition, the lack of precipitation and the scarcity of water resources, particularly in Gulf Cooperation Council countries, dictate the need for high desalination capacity. This has led to comparatively high rates of electricity consumption, and corresponding rates of carbon dioxide emissions. Greenhouse gas emissions vary widely among Arab countries, reflecting variability in energy consumption, levels of development, fuel mix and change in climatic conditions.

B. Greenhouse gas sink

52. Programmes of conservation, regeneration, reforestation and afforestation are being pursued in several Arab countries. Mitigation options are being considered for increasing carbon sequestration and storage. These options include afforestation as well as land use/land use and forestry, and rehabilitation of degraded forests. Coastal area management and carbon ocean storage, combating desertification,

reforestation, and biomass conservation projects are also being pursued nationally and subregionally.

C. Climate change impacts, vulnerability, adaptation, mitigation and response measures

53. In the energy sector, measures to mitigate greenhouse gas emissions cover the supply and demand sides. Measures on the supply side include, among others, energy efficiency in power generation, cogeneration, increasing transformation efficiency, modernization of electric utilities, fuel switching to fewer carbon-based fuels, electricity imports, reduction of losses in transmission and distribution, development of plans to promote rural electrification and use of renewable energy sources. Development projects have been pursued in some Arab countries in cooperation with industrialized countries under the Clean Development Mechanism. On the demand side, reporting countries have identified mitigation options in the industrial, residential, and commercial and transport sectors. The main reported measures have been related to enhancement of energy efficiency in lighting, cooling, cooking and air conditioning; implementation of demand-side management programmes; promotion of fuel switching; and use of renewable energy.

54. Energy efficiency measures have included improvements in building designs and the enforcement of building regulations. Other measures have included energy audits, and the use of energy efficiency labelling for appliances.

55. In the power generation sector, the switch from more-carbon-intensive fuels to natural gas, and the use of combined-cycle power plants, were the most commonly reported activities.

56. In the transport sector, measures envisioned by Arab countries would cover development of road transportation master plans, introduction of electric or compressed natural gas vehicles, improvement of the public transport systems, compliance with vehicle emission standards, and improvement of road infrastructure.

57. The Arab countries are likely to be affected by climate change. Climate change will have negative effects on the region in all sectors including agriculture, water resources, forestry, fishery, health, biodiversity, and human settlements, as indicated by the Intergovernmental Panel on Climate Change in its assessment reports.

58. Small island countries and those with low-line coastal areas in the Arab region are especially vulnerable to climate change and sea-level rise.

59. Many Arab countries, particularly oil producers, have experienced significant economic losses resulting from the implementation of climate change mitigation response measures by industrial countries in complying with their commitments under the United Nations Framework Convention on Climate Change and the Kyoto Protocol to the United Nations Framework Convention on Climate Change,[15] and have called for compensation for these losses in accordance with the provisions of the Framework Convention.

60. One of the most important constraints on the assessment of vulnerability and adaptation was the lack of capacities to conduct the type of vulnerability and

adaptation assessments that would generate reliable results for incorporation into national development planning processes.

D. Cross-cutting issues

1. Capacity-building

61. Arab countries have identified the extent of the involvement of academics and experts in the preparation of the reports of the Intergovernmental Panel on Climate Change and similar assessments. They have identified the technical and financial assistance and the means needed to strengthen capacity-building so as to fulfil the obligations and commitments under the United Nations Framework Convention on Climate Change, and the means needed to enhance scientific and technological capabilities for the exchange of scientific data and information. Most of them have indicated their needs for capacity-building in the collection, archiving and management of data needed for the preparation of national communications. In addition, a need was reported for enhancing existing methodologies and capacities to undertake integrated assessment of climate change impacts in different sectors (such as water resources, agriculture, human health, coastal zones, human settlements and biodiversity, etc.).

62. Support from the international community is required in building the needed institutional structures for better coherence of climate change policies with national policies and strategies. It should also provide enhanced assistance to national education systems in undertaking consideration of climate change at the primary, secondary and tertiary levels. Educational systems should encourage wider understanding and study of society/environment interactions, because there is a need for a better-informed public on the consequences and impacts of climate variability and change. The provision of financial assistance to some Arab countries, especially least developed countries, is urgently needed in the planning and implementation of response measures for adapting to the potential impacts of climate change. Developed countries are required to assist Arab countries on issues of technology transfer, and the selection of appropriate technologies.

63. Training activities are greatly needed in areas such as vulnerability and adaptation assessments, climate modelling and observations, and data management. There is also an urgent need to build the capacity to deal with the issues of land-use, land use change and forestry. Political support at the country level is essential, and Arab countries are encouraged to participate in the global activities related to disaster reduction and initiatives on global change research and systematic observations. In addition, oil exporting countries should cooperate in assessing further modelling work to determine, with less uncertainty, the magnitude of the impact on individual Arab economies of the response measures of developed countries.[16]

2. Technology transfer

64. There is a need in many Arab countries for technology transfer in different areas of climate change mitigation and adaptation. This is due to the lack of appropriate technologies, and research and development capabilities, and difficulties with technology transfer from developed countries.

65. Although the Global Environment Facility and other bilateral and multilateral donor organizations are mandated to facilitate the transfer of climate-friendly technologies to Arab countries, the international community should also support Arab countries and regional collaboration on climate change control and mitigation strategies.

E. Priority areas for actions

66. Many efforts are being exerted by countries of the Arab region towards mitigating climate change. However, these efforts need to be supported by the international community through actions including:

(a) Supporting Arab countries in their efforts to establish institutional capacities in the field of climate change;

(b) Supporting Arab countries in the environmental and economic impact assessment of climate change and the corresponding adaptation measures needed;

(c) Transferring environment-friendly technologies to the region;

(d) Supporting regional collaboration on climate change control and mitigation strategies and assisting them in joining the international efforts in this respect;

(e) Mitigating the impact of policies and measures adopted by the industrialized countries to comply with the United Nations Framework Convention on Climate Change and the Kyoto Protocol to the Convention and compensating the losses incurred by the Arab nations due to these measures.

V. Industrial development

A. Overview

67. Oil and gas resources play an important role in the economies of the Arab region as exports and as supporting inputs for the energy-intensive value-added industries that are proliferating in oil producing countries. Mining and processing of industrial minerals and metals, which have increased alongside fossil fuel extraction, are considered an important source of foreign currency in the region.

68. Countries with diversified economies continue to focus on traditional industries such as food processing and textiles. There has also been a gradual shift towards intermediate and oil-based industries in the oil producing countries, particularly chemicals, petrochemicals, fertilizers and plastics.[17] While this could signal the development of the sector and an increase in upstream linkages, concern remains regarding the potential environmental impacts of increased production in these new pollution-intensive activities. While the performances of the region's industry are mostly heterogeneous, few countries have been able to set up competitive industries that use modern technologies.

69. Industry in the Arab region has the following characteristics:[18]

(a) Concentration of Arab countries on extractive or primary processing of their raw materials rather than on manufacturing of end products. The opportunity to

raise value added from further processing of primary materials is substantial (for example, downstream petrochemicals, plastics, metal products, textile, etc.);

(b) Dominance of the capital goods industry which represents a viable sector in countries with diversified economies. However, these countries remain heavily dependent on imports of basic components as they concentrate on the local assembly of such goods;

(c) Poor export performance of manufactured goods and a high deficit in the trade balance. Export promotion policies may remedy this situation.

70. Considerable complementarities across countries of the region can be exploited to their advantage if industrial development strategies are coordinated in such a way as to encourage the comparative advantage of the individual countries while promoting the growth in intraregional trading.

71. Sustainable industrial development continues to face several challenges in the region. In many countries, these actions may include protection against competing imports, financial subsidies and discrimination in government procurement in favour of public sector industries. Such actions may hinder the shift towards cleaner industry.

B. Steering industrial development along a sustainable path

1. Cleaner production and industrial environmental management[19]

72. Arab industry is recognizing the need to avoid or minimize waste generation through the introduction of new cleaner production technologies. The public and private sectors currently regard pollution prevention as a dynamic concept that implies gradual development of technical expertise and enhanced management of environmental problems. This trend has resulted in progressive improvements in patterns of production and consumption, with an ultimate goal of achieving the sustainable development of Arab industry.

73. Few large-scale industries have introduced the concept of the life-cycle assessment. This approach encourages companies to work together to exchange waste for reprocessing in situations where prevention at source is either uneconomical or not technically feasible. Some countries are promoting the establishment of free trade zones, which, when placed within an enabling environment that encourages sound business practices, can attract new industries with modern technologies, as a means to improve productivity, as well as increase and diversify exports.

74. Most large-scale industries employ total recycling systems for cooling applications and multiple reuse of process water. Various desulphurization processes in oil refining achieve a reduction in the sulphur content of the crude oil, while providing an ample source of sulphur for fertilizers and other chemical industries.

75. Nevertheless, traditional macroeconomic policies and social attitudes obscure the benefits of, and act as a disincentive to, implementing cleaner production. Furthermore, the lack of capacity in financial institutions to evaluate the feasibility of cleaner production projects makes those institutions reluctant to fund such projects. Legislative and administrative mechanisms do not encourage the application of new cleaner production initiatives in industry. Despite the presence of

several national cleaner production centres in the Arab region, the fact that information is still inadequate has led industrialists to regard cleaner production technologies as costly systems that involve complex operations unsuitable to local conditions. Most entrepreneurs remain unconvinced that cleaner production could bring a direct benefit to their manufacturing operations.[20]

76. Despite these apparent obstacles, more sustainable business opportunities are anticipated in the long term. The perception of the environment will change: environmental concerns will be viewed not as a liability entailing monetary costs, but rather as a matter of integrating those concerns into business strategy and production processes. Both Governments and the business community should thus demonstrate their commitment to cleaner production by instituting a proper environmental policy that allocates personnel, time and financial support for environment-conscious processes and products.

77. Industrial environmental management is increasingly regarded in the region as an effective tool with which to improve production processes and materials and achieve efficient waste reduction, particularly in large-scale industries. While the system aims primarily at compliance with environmental regulations, it provides industrial managers with the proper means to improve production performance, product quality and competitiveness. In the new economic environment accompanying globalization, Arab countries are also enhancing their capacity in respect of standards, quality testing, certification and accreditation, including conformity with ISO 9000 and ISO 14000 management systems.[21]

2. Institutional measures to enhance industrial sustainability[22]

78. Institutional measures are being adopted to enhance industrial development. These include the revision and updating of national environmental action plans to include industrial sustainability. Recent emphasis has been placed on improving waste reprocessing and recycling practices in Arab industry. Waste recovery schemes for spent chemicals, solvents, acids, alkalis and heavy metals have been installed in locations where such constituents in industrial effluents are generated in large amounts. Some Arab countries have initiated plans to relocate pollution-intensive industries from urban areas to other locations away from the populated communities. Some Arab countries have also established cleaner production centres to provide technical assistance and training on environmentally sound technologies and proper management of waste.

79. Revision of environmental legislation has received increasing attention in recent years. There has also been advancement in the area of voluntary compliance. The use of economic instruments to encourage development and application of environmentally friendly measures has been integrated into the regulatory system of a few countries. The imposition of environmental taxes, fees and other financial measures are used to improve manufacturing practices and discourage waste generation. A recent trend towards imposing an environmental surcharge on some production processes that are potentially polluting (cigarette manufacturing, cement manufacturing, etc.) is a move in the right direction.

80. At present, most new enterprises are located in industrial cities. These cities are established in unpopulated locations where business can benefit from the efficient infrastructure of services. Procedures for accident prevention are adopted in most industry-intensive areas through employment of hazard control at source,

licensing and permit systems for emergency response, and proper zoning. Major industrial cities have established permanent committees for emergency preparedness in industrial areas, while the establishment of hazardous substances information and management systems is gaining momentum in some Arab countries.[23]

81. As pollution control standards have become more stringent, and the cost of freshwater has increased, industrial waste treatment has gained more attention. This situation is driving several water-intensive facilities to install advanced wastewater treatment systems that permit closing of the water cycle within plants with minimum feed from the municipal networks.

82. The shortage of skilled workers constitutes an important impediment to the sustainable development of the Arab manufacturing industry. Special attention is being given to the training of the enforcement and inspection personnel needed to enhance the awareness of the environmental impact of manufacturing operations and use the knowledge and experience gained to curb industrial pollution, as well as to foster the use of effective cleaner production options and the enforcement of appropriate regulations and administrative instructions.

83. Community participation in decisions concerning industry related to location and pollution prevention is accorded low priority in some Arab countries. There is a need for strengthening communication among government, industry and the local communities, and encouraging the exchange of views on industry actions that affect the welfare of citizens or pose public-health risks. Some Arab countries have implemented measures to help consumers identify environment-friendly products through eco-labelling. Eco-labels also act as a stimulus for application of cleaner production technologies in industry.[18]

84. The absence of effective land-use and industrial zoning regulations is creating health and environment risks in some urban areas. Encroachment of residential areas upon the safe boundary areas (buffer zones) is one cause of those health risks. To safeguard against health and environmental risks of industrial development, zoning and regional planning measures are being contemplated for industry-intensive areas in some Arab countries.

85. Since pollution remediation in industry relies on technological advances, obstacles in this regard also exist, including the fear exhibited by technical personnel and operators of dealing with unfamiliar waste treatment methods and technologies, and technological limitations in respect of new waste treatment processes and their impacts on production processes. There exist very few remediation projects for polluted soils in industrial and service locations (for example, those that are the site of oil, chemical, petrochemical and metallurgic industries, gas filling stations and military installations). Contaminated sites are commonly abandoned and left for use as dumping grounds that pose health risks.

C. Priority areas for actions

86. Building on technological advancements, Arab industry is positioned to abate pollution at reasonable cost and to integrate low-waste processes in their operations. However, this would require greater technology transfer and development of cleaner production technologies in the region, which could be realized with measures that promote:

(a) Private sector development in sustainable industries, and extend financial and technical support to small and medium-sized enterprises;

(b) Recovery and reutilization of waste, and establishing a national clearing house for waste exchange;

(c) Strategic interventions at the policy level to improve processes and products through adoption of the new approaches of life-cycle assessment, industrial environmental management, sustainable consumption, cleaner production, eco-labelling, and the instituting of innovative financing mechanisms to encourage private sector involvement;

(d) Voluntary initiatives to encourage the use of environmentally sound technologies, while enforcing compliance with emission standards;

(e) Research and development to improve industrial practices through development of environmentally sound technologies, and promote their application with due regard to cost-effectiveness;

(f) Integration of sustainable approaches in industry with similar efforts in the services, infrastructure and resource management sectors;

(g). Institution of a regional system for information network to act as a delivery mechanism for information concerning legislation, emissions standards, cleaner technologies, waste minimization and industrial environmental management;

(h) Public awareness and participation through increased flow of information from industry and government to the public and other stakeholders, and vice versa;

(i) Internal and external monitoring, self-monitoring and auditing schemes to support environmental enforcement and to enhance efforts for maintaining a clean environment for the benefit of workers and the surrounding communities.

Notes

[1] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] General Assembly resolution S-19/2, annex.

[3] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[4] New York, UNDP, 2004.

[5] Organization of Arab Petroleum Exporting Countries (OAPEC), *Annual Statistical Report 2004* (Kuwait, 2004).

[6] UNDP, *Arab Human Development Report, 2004* (New York, UNDP, 2005).

[7] Economic and Social Commission for Western Asia, "Population and development: the demographic profile of the Arab countries" (E/ESCWA/SDD/2003/Booklet.2), pamphlet, 2003.

[8] Economic and Social Commission for Western Asia, "Capacity-building in sustainable energy systems: an approach to poverty alleviation and gender mainstreaming, volume I", "Energy for sustainable development in ESCWA member countries", New York, 2001 (in Arabic).

[9] Economic and Social Commission for Western Asia, ESCWA briefing note 3, for the World Summit on Sustainable Development: "The challenges and opportunities for achieving a sustainable energy sector" (E/ESCWA/ENR/2002/3), New York, 2002 (in Arabic).

[10] Economic and Social Commission for Western Asia, "Options and opportunities for greenhouse gas abatement in the energy sector of ESCWA region", vol. II, "The power sector" (E/ESCWA/ENR/2001/15, vol. II), New York, 2001.

[11] International Energy Agency (IEA), *World Energy Outlook: Energy and Poverty* (Paris, 2002).

[12] Secretariat of the Council of Arab Ministers Responsible for Electricity, League of Arab States.

[13] United Nations. *Treaty Series*, vol. 1771, No. 30822.

[14] Data available from the website of the United Nations Framework Convention on Climate Change (http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php)(accessed 26 June 2005).

[15] FCCC/CP/1997/7/Add.1, decision 1/CP.3,annex.

[16] "Report of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention: note by the secretariat" (FCCC/SBI/2002/15), presented to the Subsidiary Body for Implementation of the United Nations Framework Convention on Climate Change at its seventeenth session, 23-29 October 2002, New Delhi.

[17] League of Arab States, Arab Fund for Economic and Social Development, Arab Monetary Fund and OAPEC, "Joint Arab Economic Report, 2004", September 2004 (in Arabic), available from http://www.amf.org.ae/.

[18] A. Hamza, "Cleaner production in the Arab countries in the Eastern Mediterranean Region", consultancy report, Regional Activity Centre for Cleaner Production, Barcelona, Spain, June 2002.

[19] A. Hamza, "Environmental concerns of the Arab industrial development strategy", Arab Industrial Development and Mining Organization, for the Meeting of the Arab Ministers Responsible for Industry, Khartoum, December 2004.

[20] League of Arab States, "Report of the Expert Group Meeting on Establishing National Cleaner Production Centres in the Arab Region", July 2002 (in Arabic).

[21] R. Al-Khouri, "Future of Arab industry lies in standardization", *The Daily Star Online*, 2005, available from http://www3.estart.com/arab/business/arabindustrystandard.html.

[22] A. Mobarak, "The challenge of sustainable industrial development in Egypt", country paper prepared for the World Summit on Sustainable Development, October 2001.

[23] A. Hamza, *Guidelines on Environmentally Friendly Industrial Estates in the Arab Region*, technical publication (Cairo, League of Arab States, secretariat of the Arab Ministers Responsible for Environmental Affairs, November 2005) (in Arabic).